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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/623,059	07/18/2003	Hans-Artur Bosser	21295.54 (H5638US)	3974

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EXAMINER	
VALENTIN, JUAN D	

ART UNIT	PAPER NUMBER
2877	

DATE MAILED: 10/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/623,059	BOSSER ET AL.	
	Examiner	Art Unit	
	Juan D. Valentin II	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 July 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/17/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the methods as claimed must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 1 & 10 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant is inconsistent with the terminology used to describe the two different spectrums found within claim 1. At first applicant refers to an "acquired spectrum" and an "analysis spectrum", but then switches to a "calculated analysis spectrum" and a "measured spectrum", and then further discloses a "acquired measured spectrum". This inconsistent claim terminology makes it confusing and difficult to understand what exactly applicant is claiming. After careful scrutiny examiner is going to assume for examination purposes that the "analysis spectrum" and "calculated analysis spectrum" are referring to the same spectrum, and the "acquired spectrum", "measured spectrum", and "acquired measured spectrum" are all referring to the same spectrum. Applicant is asked to please choose one term per spectrum and consistently use it throughout all of the claims, independent and dependent in order to allow for better understanding of applicants claimed invention.

Further, applicant has claimed "*optimizing* the calculated analysis spectrum" (emphasis added), but has not defined within the claim what type of optimization is taking place. Optimization in general is broad and non-descriptive unless well defined within the claim. How is the calculated analysis spectrum optimized to the measured spectrum? What steps are taken to carry out the said optimization? Examiner cannot to a complete search on the claim as scripted, applicant is asked to please clearly define the optimization process within the claim. The claim will be examined to the best of examiner's understanding in light of the specification as originally filed.

2. Claims 3 & 12 recite the limitation "in order to restrict" in line 1 and the limitation "the value ranges" in line 2. There is insufficient antecedent basis for these limitations in the claims. What values are determined for optimization? Claim 1 does not refer to any value ranges, and further does not refer to restricting anything? Appropriate action is required to correct for the insufficient antecedent basis problem with the claims.

3. Claims 3 & 12 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant claims "wherein in order to restrict", but has not claimed a step of restricting anything prior to this limitation? Why is there a need to restrict anything? How are the values being restricted and from what are they being restricted?

4. Claims 5 & 14 recite the limitation "the values" in line 1. There is insufficient antecedent basis for this limitation in the claim. What values are determined for optimization? Claim 1 does not refer to any values that are determined for optimization, therefore there is a lack of antecedent basis for this claimed limitation. Appropriate action is required to correct for the insufficient antecedent basis problem with the claims.

5. Claims 5 & 14 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 5 uses that values determined for optimization are "optionally corrected" for the optical parameters to be determined. This language is indefinite, either the values corrected for or not. Optionally is open-ended and does not further limit the claim allowing. Correction is required. The claim will be examined to the best of examiner's understanding in light of the specification as originally filed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-15 rejected under 35 U.S.C. 103(a) as being unpatentable over Opsal et al. (USPN '661 B1, hereinafter Opsal) in view of Shchegrov (USPN '892 B2).

Claims 1-15

Opsal discloses acquiring an optical spectrum at one location of the layer stack, calculating an analysis spectrum on the basis of specified optical parameter values, comparing the acquired optical spectrum to the analysis spectrum, and optimizing (col. 3, lines 43-46) the calculated analysis spectrum to the measured spectrum (abstract, col. 3, lines 31-46, col. 4, lines 24-32, col. 5, lines 18-30, lines 39, 51, col. 6, line 1, col. 7, line 8).

Opsal substantially teaches the claimed invention except that it fails to show classifying the acquired measured spectrum on the basis of curve shape parameters that characterize the measured spectrum and are determined therefrom and comparing those curve shape parameters to corresponding spectrum curve shape parameters calculated for known layer stacks in order to determine values or value ranges for the optical parameters to be identified, on the basis of which the analysis spectrum or spectra for comparison with the measured spectrum is/are calculated. Shchegrov shows that it is known to provide optimization, classifying the acquired measured spectrum on the basis of curve shape parameters that characterize the measured spectrum and are

determined therefrom and comparing those curve shape parameters to corresponding spectrum curve shape parameters calculated for known layer stacks in order to determine values or value ranges for the optical parameters to be identified, on the basis of which the analysis spectrum or spectra for comparison with the measured spectrum is/are calculated (abstract, col. 2, lines 26-43, col. 4, lines 53-64, col. 5, line 27-40, & col. 7, line 13-col. 11, line 62, *esp. col. 8, lines 4-24 & col. 10, lines 45-57*) for an parametric profiling system. It would have been obvious to someone of ordinary skill in the art to combine the device of Opsal with the classifying and comparing shape parameters of Shchegrov for the purposes of providing improved control for lithographic and etching processes in order to compensate for any errors in profile parameters (Shchegrov, abstract). It is the position of the Office that while not specifically using the word "classifying". Shchegrov indeed classify's the acquired profile measurement because it would have been obvious to someone of ordinary skill in the art at the time of the claimed invention that there would be a need to classify the acquired profile measurement in order to be able to sort through the different types of profiles stored within the profile library of Shchegrov (col. 10, lines 10, lines 29-36) which is accomplished at the same time as the comparing step.

Opsal in view of Shchegrov teaches the use of least squares fitting algorithm (fine/coarse fitting methods) (Opsal, col. 6, lines 47-52). Opsal in view of Shchegrov further discloses wherein the calculated analysis spectrum is *optionally* corrected (normalized) for (col. 5, lines 39-51). Opsal in view of Shchegrov simultaneously determine all the optical parameters of the sample under test (Shchegrov, col. 11, lines 18-40).

It is obvious to someone of ordinary skill in the art at the time of the claimed invention that the methods taught by Opsal in view of Shchegrov are composed in a computer readable

program that is stored on a computer readable medium for the purposes of sending the program and running the inspection process on multiple machines throughout a manufacturing plant.

Conclusion

"Several facts have been relied upon from the personal knowledge of the examiner about which the examiner took Official Notice. Applicant must seasonably challenge well known statements and statements based on personal knowledge when they are made by the Board of Patent Appeals and Interferences. In re Selmi, 156 F.2d 96, 70 USPQ 197 (CCPA 1946); In re Fischer, 125 F.2d 725, 52 USPQ 473 (CCPA 1942). See also In re Boon, 439 F.2d 724, 169 USPQ 231 (CCPA 1971) (a challenge to the taking of judicial notice must contain adequate information or argument to create on its face a reasonable doubt regarding the circumstances justifying the judicial notice). If applicant does not seasonably traverse the well-known statement during examination, then the object of the well known statement is taken to be admitted prior art. In re Chevenard, 139 F.2d 71, 60 USPQ 239 (CCPA 1943). A seasonable challenge constitutes a demand for evidence made as soon as practicable during prosecution. Thus, applicant is charged with rebutting the well-known statement in the **next reply** after the Office action in which the well known statement was made."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan D. Valentin II whose telephone number is (571) 272-2433. The examiner can normally be reached on Mon.-Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on (571) 272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Juan D Valentin II
Examiner 2877
JDV
October 4, 2005

Michael P. Stafira
Primary Patent Examiner
Technology Center 2800